

*ANNINA MANNAI*, A NEW ISOPOD FROM THE  
GANGES RIVER, WEST BENGAL  
(CRUSTACEA: ISOPODA: CIROLANIDAE)

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*Abstract.*—*Annina mannai*, n. sp., the fifth known species of *Annina*, is described from fresh water of the Ganges River in West Bengal, India. It is distinguished from its congeners by a single, crescent-shaped dorsal projection in the male on pereonite 2.

The genus *Annina* was erected in 1908 by Budde-Lund to accommodate *A. lacustris*, taken from a salt-water pool in Zanzibar off the East Africa coast. Three others have since been described from mangrove swamps, estuaries and streams (*A. kumari* [Bowman 1971] from Malaysia; *A. fustis* Bowman & Iliffe 1991 from Thailand; and *A. mesopotamica* [Ahmed 1971] from Iraq). Jones (1983) provided a revised diagnosis of *Annina*, declaring it distinct from the closely-related *Excirolana* due to the presence of dorsal projections on the male cephalon and/or pereonites 1 and/or 2, a transverse non-faceted band in the eye, and other characters.

Herein is described a fifth species, collected by Dr. A. K. Manna in fresh water of the Ganges River along with atyid shrimp. All known species of *Annina* have been described from near the northern perimeter of the Indian Ocean region (see Fig. 4). Non-type localities include Singapore (*A. fustis*) and Kenya and Comoros Islands, where *A. lacustris* has been found (Bowman & Iliffe 1991).

Genus *Annina* Budde-Lund, 1908  
*Annina mannai*, new species  
Figs. 1–3

*Material.*—USNM 252750 Holotype ♂, TL 7.0 mm; USNM 252751 Allotype ♀, TL 8.9 mm; USNM 252752 Paratypes, 1♂, 18

♀, 11 juvs., shore of Ganges River in District Murshidabad, West Bengal, India, coll. A. K. Manna, 1992.

*Description.*—Length up to 8.9 mm. Body widest at pereonite 6; pleon narrower than pereon. Marked sexual dimorphism; adult male with dense patch of setae between eyes and crescent-shaped middorsal process on pereonite 2; blunt, raised “shoulders” at anterolateral parts of pereonite 2; pereonite 1 with middorsal depression. Female cephalon without setae or processes; no processes on pereon.

Cephalon produced anteriorly into rounded rostrum projecting between antennal bases. Lateral incision posterior to each eye, reaching medially  $\frac{1}{3}$  width of cephalon. Clypeus triangular, pointed, directed antero-ventrally. Eyes large, with transverse, unfaceted gap dividing dorsal and ventral halves. Coxae of pereonites 1–3 rounded posteriorly; coxae 4–7 progressively more sharply pointed. Lateral margins of pleonites 1–2 straight; those of 3–5 increasingly more extended. Telson triangular, posterior  $\frac{2}{3}$  finely scalloped, bearing plumose setae, without spines. Uropodal endopod similarly scalloped on both margins, bearing plumose setae, endopod barely extending beyond apex of telson. Uropodal exopod lanceolate, faintly notched on medial margin, acuminate at apex, reaching distal  $\frac{2}{3}$  length of endopod. Pigment densest near posterior margins of cephalon, pereonites,

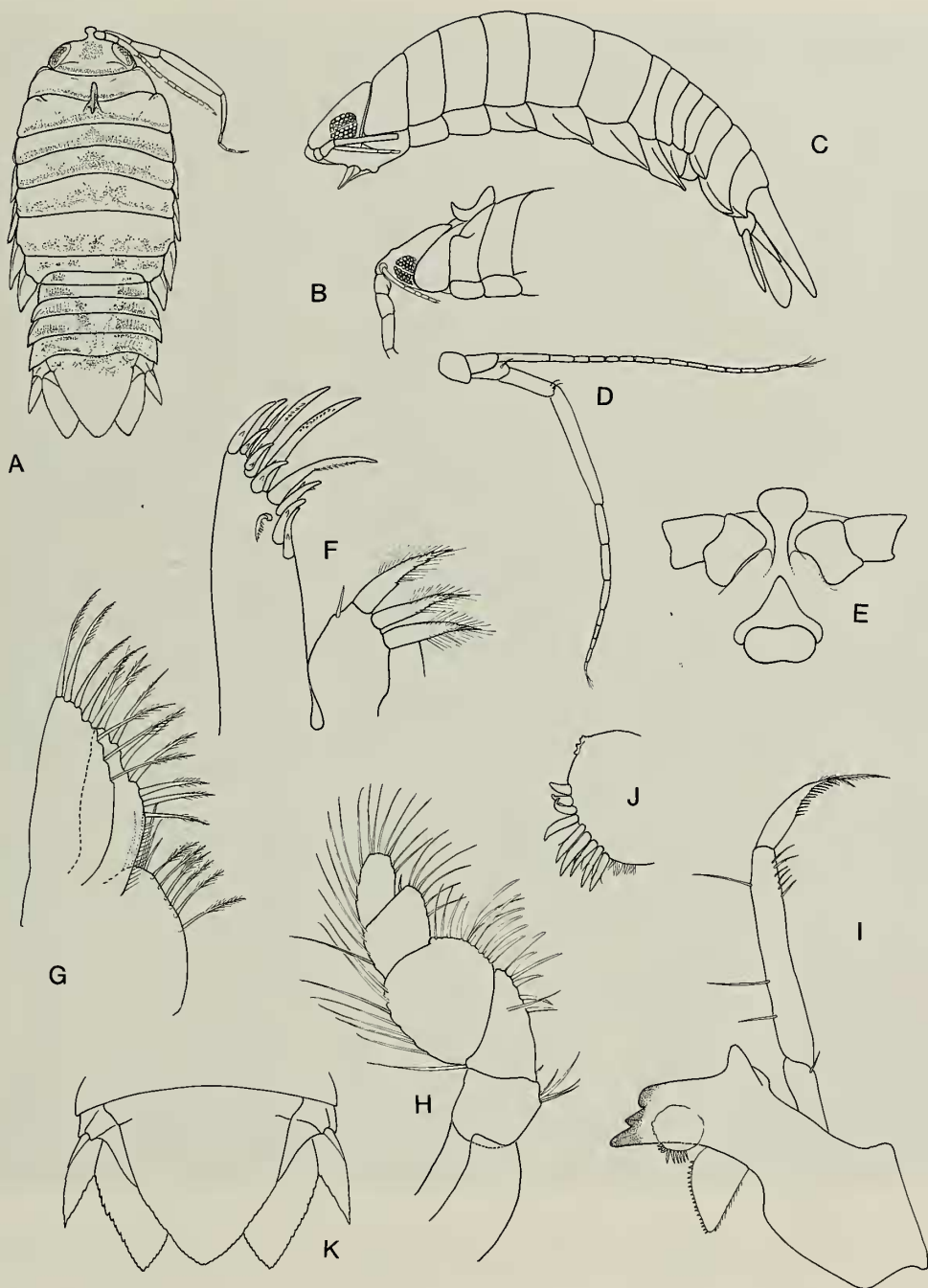


Fig. 1. *Annina mannai*, new species. A, ♂ habitus. B, ♂, lateral view of anterior. C, lateral view of ♀. D, antennae 1 and 2. E, frontal lamina and clypeus. F, maxilla 1. G, maxilla 2. H, maxilliped. I, right mandible. J, spine row and lacinia mobilis, detail. K, telson and uropods.

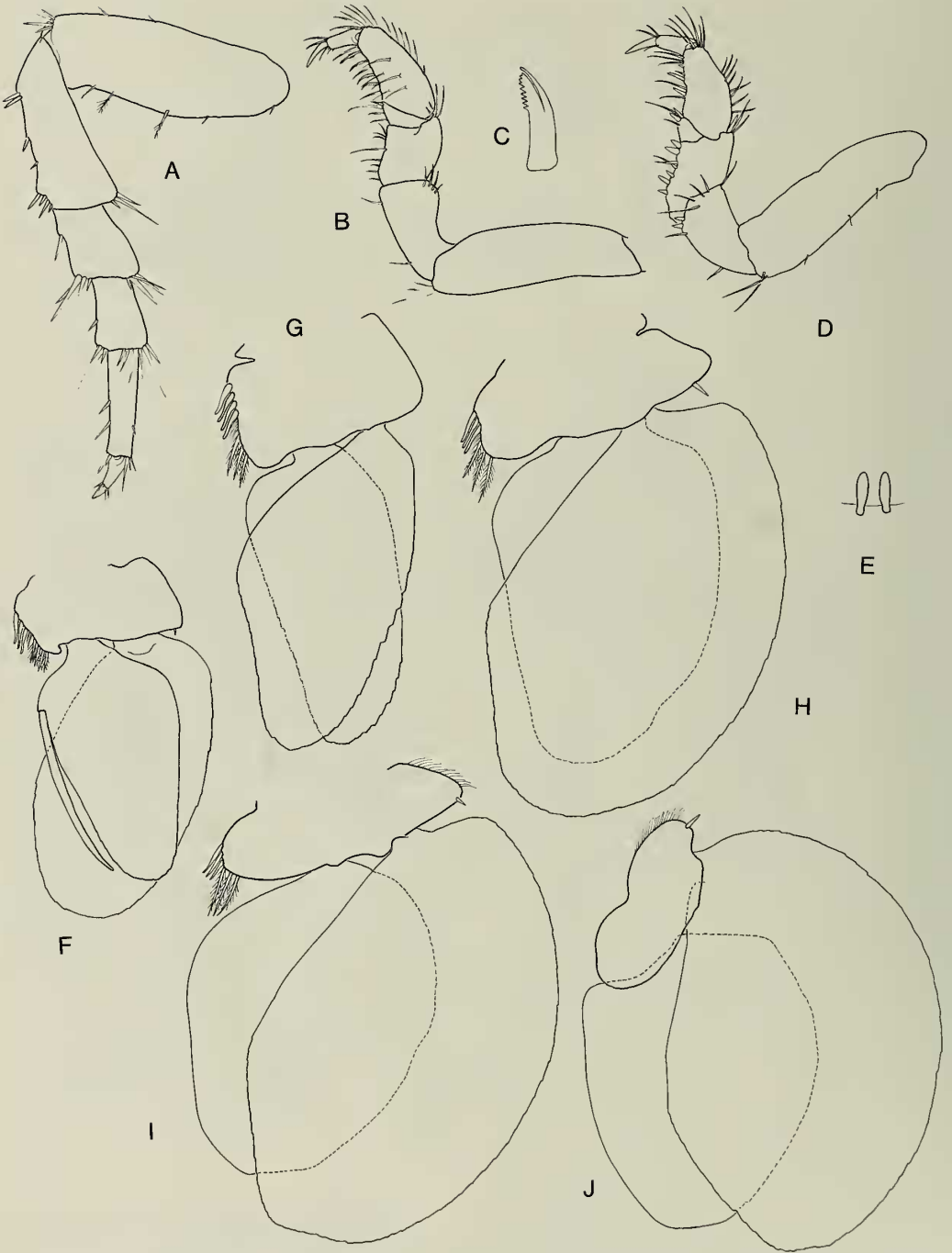


Fig. 2. *Annina mannai*, new species. A, pereopod 7. B, pereopod 1. C, cleft spine on pereopod 1. D, pereopod 2. E, penes. F, pleopod 2, ♂. G, pleopod 1. H, pleopod 3. I, pleopod 4. J, pleopod 5.

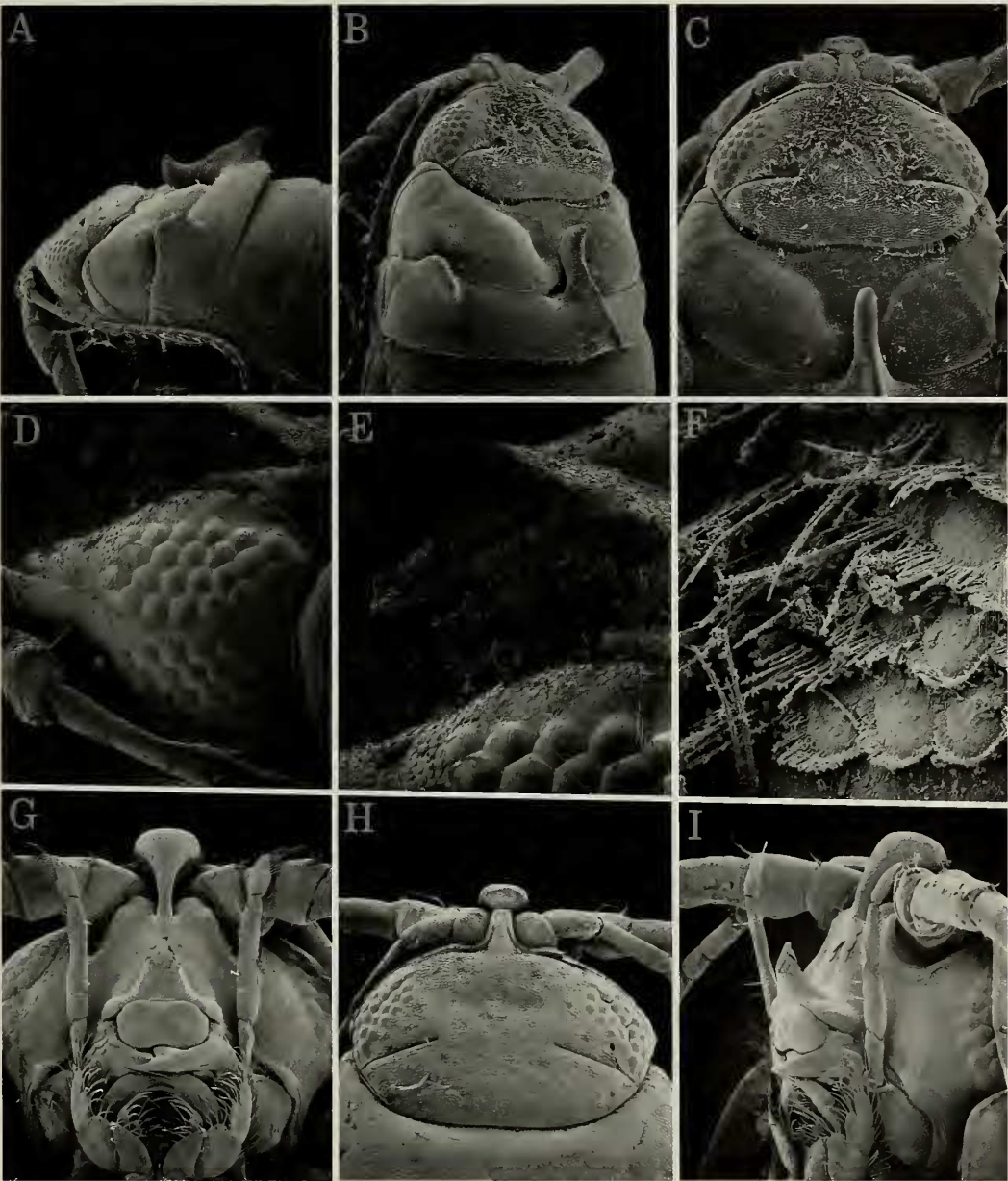


Fig. 3. *Annina mannai*, new species. A, lateral view of anterior, ♂. B, cephalon and pereonites 1, 2 of ♂. C, cephalon and pereonites 1, 2 of ♀. D, eye. E, interocular area of cephalon, closeup. F, detail of setae on scales of cephalon. G, cephalon, ventral view. H, cephalon, dorsal view, ♀. I, ventrolateral view of cephalon.

pleonites and anterior part of telson; pigment absent from medial area of pleon, forming inverted triangular shape.

Antenna 1 reaching pereonite 4; flagellum with 15–16 articles. Antenna 2 flagellum

with 9 articles in female, unknown in male; peduncle more robust and longer in male. Mandible tricuspidate; spine row composed of 9 spines, several fine setae also present. Maxilla 1, exopod with 1 seta and 12 spines





Fig. 4. Distribution of known *Annina* species. ● Type localities. ■ Additional record for *A. fustis*. ⊕ Additional records for *A. lacustris*.

(most with accessory spinules) as figured; endopod typical of genus. Maxilla 2 bearing 8 setae on both palp and exopod; endopod with about 11 setae, simple and plumose. Maxilliped typical of genus.

Pereopods ambulatory. Posterior margin of pereopod 1 with dentate, cleft spines. Pereopods 2 and 7 with many spines and setae, as figured.

Pleopod 1 with 4 coupling hooks and 3 plumose setae. Pleopod 2 with 3 coupling hooks and 4 plumose setae, appendix masculina not reaching apex of endopod. Pleopod 3 and 4 each with 3 coupling hooks and 3 setae; pleopod 5 without hooks or setae. Exopods and endopods of pleopods 1–2 with plumose marginal setae, endopods of pleopods 3–5 lacking setae. Rami of all pleopods undivided. Penes short, apically rounded.

*Etymology.*—The species is named for its collector, Dr. A. K. Manna, Professor of Zoology at Sripat Singh College, West Bengal, India.

*Remarks.*—Dr. Manna (pers. comm.) reported that the species, present year-round, is abundant in its Ganges River habitat during the rainy season and was found to be feeding on dead shrimp (*Caridina* sp., Family Atyidae), suggesting that it is a scavenger. An isopod, *Tachaea* sp., was also found in association with these shrimp.

*Annina mannai* is the only known member of the genus with a single, salient mid-dorsal process on pereonite 2 in the male. In all others the processes are paired and sublaterally placed. Below is presented a key to the five species of *Annina*, modified from that of Jones (1983) and based on characters of the adult male.

Key to *Annina* species

- 1. Posterior margin of telson truncate  
..... *A. lacustris* Budde-Lund
- Posterior margin of telson not truncate ..... 2
- 2. Male with 1 large middorsal projection of pereonite 2 .. *A. mannai* n. sp.
- Male with 2 dorsolateral projections or horns on pereonite 2 ..... 3
- 3. Projections club-shaped in lateral view, longer than half-length of pereonite 1 .... *A. fustis* Bowman & Iliffe
- Projections short (less than one-half length of pereonite 1), either blunt or acute ..... 4
- 4. Paired and pointed horns on cephalon and pereonites 1 and 2 .....  
..... *A. kumari* (Bowman)
- Paired horns, short and blunt, on pereonite 2 only .....  
..... *A. mesopotamica* (Ahmed)

Acknowledgments

I thank Dr. Brian Kensley, Department of Zoology, NMNH, for reviewing the

manuscript, and anonymous reviewers for further suggestions. Dr. A. K. Manna kindly donated his collected material to the NMNH collection.

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